

[54] **THIN FLEXIBLE ELECTRONIC CALCULATOR**[76] Inventors: **Leon A. Ferber**, 48 Lake Ave.;
Richard Pavelle, 3 Fieldstone Dr.,
both of Woburn, Mass. 01801[21] Appl. No.: **734,285**[22] Filed: **Oct. 20, 1976****Related U.S. Application Data**[63] Continuation-in-part of Ser. No. 555,075, Mar. 3, 1975,
abandoned.[51] Int. Cl.² **G06F 3/02; H05K 1/08**[52] U.S. Cl. **364/712; 174/68.5;**
200/292; 364/708; 364/709[58] Field of Search 235/156, 152; 200/292;
174/68.5, 117 PC, 117 F; 364/709, 708, 712[56] **References Cited****U.S. PATENT DOCUMENTS**

3,699,294	10/1972	Sudduth	200/292 X
3,819,921	6/1974	Kilby et al.	235/156
3,911,234	10/1975	Kotaka	174/68.5 X
3,920,979	11/1975	Kilby	235/168
4,002,892	1/1977	Zielinski	235/156

OTHER PUBLICATIONS

H. A. Goodman et al., "Integrated Packaging for Transparent Elastic Diaphragm Switches", IEEE Tech. Disclosure Bulletin, vol. 15, No. 2, Jul. 1972, pp. 544-545.

Primary Examiner—David H. Malzahn

Attorney, Agent, or Firm—Walter J. Kreske

[57]

ABSTRACT

An electronic calculator structure comprised of a flexible printed circuit on a thin flexible dielectric material base to which are fixed a low profile solid state computing and driving elements, a readout register and a low profile flexible diaphragm type number and function key structure large enough for finger operation, a P-70 Rayovac class thin battery, and an ON-OFF switch, all coupled together in manner to form a thin flexible calculator structure suitable for many end product uses such as being housed between two layers of thin flexible vinyl to form one side of a thin flexible folder, the other side of which carries a pad or business form such as check book or bank deposit and withdrawal recording form to create thereby a thin, flexible, light, folder type calculator for comfortable pocket storage and ready access for on-the-spot use to solve mathematical problems. In one embodiment the ON-OFF switch has an outwardly projecting member when in the ON position as an obstruction to closing the folder for storage until moved to the OFF position to prevent battery discharge during storage. The calculator structure is as thin as five thirty seconds of an inch, thereby sufficiently thin for incorporation as a separate page in a conventional note book or incorporation in a notebook cover for ready access in business, laboratory or class room.

27 Claims, 24 Drawing Figures